Animals

2-2 The student will demonstrate an understanding of the needs and characteristics of animals as they interact in their own distinct environments. (Life Science)

2-2.1 Recall the basic needs of animals (including air, water, food, and shelter) for energy, growth, and protection.
Taxonomy level: 1.2-A Remember Factual Knowledge

Previous/Future knowledge: In kindergarten (K-2.1), students recognized that organisms needed certain things to stay alive (including air, water, food, and shelter). This will be further explored in 3rd grade (3-2) when students will demonstrate an understanding of the characteristics and patterns of behavior that allow organisms to survive in their own distinct environments.

It is essential for students to know that animals have basic needs required for survival. Some of these needs provide for energy, growth, and protection of the animal.

Energy
- Energy gives the animal the ability to move and grow.
- They get energy from the food they eat and the air they breathe.

Growth
- Growth means to get bigger.
- In order for an animal to grow it must have food and water.

Protection
- Protection is a special way an animal takes care of itself.
- Animals have different ways to protect themselves from being hurt or from changes in their environment; for example rain or a change in the temperature.
- Shelter is the basic need that provides this protection.

It is not essential for students to know terms of protection such as camouflage at this grade level.

Assessment Guidelines:
The objective of this indicator is to *recall* needs of animals for energy, growth, or protection; therefore, the primary focus of assessment should be to remember which needs of animals provide energy, growth, and protection. However, appropriate assessments should also require students to *identify* what is needed for an animal to survive; or *recognize* the need as providing energy, growth, or protection.

Animals

2-2 The student will demonstrate an understanding of the needs and characteristics of animals as they interact in their own distinct environments. (Life Science)

2.2.2 Classify animals (including mammals, birds, amphibians, reptiles, fish, and insects) according to their physical characteristics.
Taxonomy level: 2.3-A Understand Factual Knowledge

Previous/Future knowledge: This is the first time that students have studied specific examples of animals. This concept will be further developed in 4th grade (4-2.1) when the concepts of vertebrates and invertebrates will be introduced.

It is essential for students to know that there are many different ways that animals can be classified. One way to classify animals is by their physical characteristics. A *physical characteristic* is one that can be observed using the senses. Groups that animals can be classified into are:

Mammals
- Mammals have fur or hair, usually give birth to live young, and can nurse their young with milk.
- Mammals usually look like their parents and will be able to reproduce.
- Some examples of mammals are humans, dogs, or cows.

Birds
- Birds have bills or beaks, feathers, wings and lay eggs.
- Some examples of birds are parrots, ostriches, or penguins.

Amphibians
- Amphibians live both on land and in water.
- Amphibians have moist skins and no scales.
- Most amphibians lay eggs in water and the young breathe with gills before developing lungs and breathing air as adults.
- Some examples of amphibians are salamanders, frogs, or toads.

Reptiles
- Reptiles have scales or rough, dry skin.
- Some examples of reptiles are snakes, lizards, and turtles.

Fish
- Fish have fins, live in water, and breathe through gills.
- Some examples of fish are goldfish, guppies, or sharks.

Insects
- Insects have antennae, three body parts, and six legs and usually have wings.
- Examples of insects are ants, butterflies, or bees.
- Spiders are not insects.

Animals

2-2 The student will demonstrate an understanding of the needs and characteristics of animals as they interact in their own distinct environments. (Life Science)

It is not essential for students to identify a large number of examples in each of the above categories or the difference between an invertebrate and a vertebrate.

Assessment Guidelines:
The objective of this indicator is to *classify* animals according to their physical characteristics; therefore, the primary focus of assessment should be to determine that an animal belongs into a particular group based on its physical characteristics. However, appropriate assessments should also require students to *recognize* an animal as being a mammal, bird, amphibian, reptile, fish or insect based on its physical characteristics; or *summarize* that the animals belong to a certain category based on their physical characteristics.

Animals

2-2 The student will demonstrate an understanding of the needs and characteristics of animals as they interact in their own distinct environments. (Life Science)

2.2.3 Explain how distinct environments throughout the world support the life of different types of animals.
Taxonomy level: 2.7-B Understand Conceptual Knowledge

Previous/Future knowledge: In 1st grade (1-2.5, 1-2.6) students explained how distinct environments in the world supported different types of plants. In 4th grade (4-2.2) students will explain how distinct environments (including swamps, rivers and streams, tropical rainforests, deserts and polar regions) influence the variety of animals that live there.

It is essential for students to know that animals require air, water, food, and shelter and can only survive in environments where these needs can be met. There are distinct environments in the world (for example salt and freshwater, deserts, grasslands, forests, polar lands) that support the life of different types of animals.

It is not essential for students to study all of the distinct environments (biomes) in the world or all the animals but a study of more than one distinct environment is needed to completely cover the indicator.

Assessment Guidelines:
The objective of this indicator is to *explain* how distinct environments allow certain animals to live there; therefore, the primary focus of assessment should be to construct a cause-and-effect model of the various environments and how they support different animals. However, appropriate assessments should also require students to *recall* the way a distinct environment support the types of animals that live there; *summarize* the conditions within an environment that support the life of an animal that lives there; or *identify* an animal that would live in a distinct environment.

Animals

2-2 The student will demonstrate an understanding of the needs and characteristics of animals as they interact in their own distinct environments. (Life Science)

2.2.4 **Summarize the interdependence between animals and plants as sources of food and shelter.**
Taxonomy level: 2.4-B Understand Conceptual Knowledge

Previous/Future knowledge: In 1st grade (1-2), students illustrated the characteristics of plants and how these characteristics helped them survive in their own distinct environments. This is the first time that students have been introduced to the idea that animals and plants rely on each other for food and shelter. Students will develop this concept further in 3rd grade (3-2.5) when they study simple food chains.

It is essential for students to know that animals cannot survive without plants and many plants depend on animals. –

- Plants are sources of food for many animals and can provide shelter for other animals. For example, cows eat grass for food and some insects eat leaves; or for shelter, some trees serve as homes for small animals, such as squirrels, birds, or insects.
- Some animals can be a source of nutrients for plants. For example, animal waste (such as manure from cows and chickens, or guano from bats) can become fertilizer for plants.

It is not essential for students to illustrate these relationships with food chains or food webs.

Assessment Guidelines:
The objective of this indicator is to *summarize* the interdependence of plants and animals; therefore, the primary focus of assessment should be to generalize the main ways that animals and plants depend on each other to survive. However, appropriate assessments should also require students to *illustrate* how an animal uses a plant as a shelter or food.

Animals

2-2 The student will demonstrate an understanding of the needs and characteristics of animals as they interact in their own distinct environments. (Life Science)

2-2.5 Illustrate the various life cycles of animals (including birth and stages of development).
Taxonomy Level: 2.2-B Understand Conceptual Knowledge

Previous/Future knowledge: In kindergarten (K-2.3), students matched parents with their offspring. In 1st grade (1-2.4), students summarized the life cycle of plants. In 3rd grade (3-2.1), students will illustrate the life cycles of seed plants and various animals and summarize how the plants and animals grow and adapt to their environments.

It is essential for students to know that all animals go through a life cycle.

Life cycle
- The birth and stages of development organisms go through during their life span and ends with the organism dying

There are two ways that animals are born: live from the mother or hatched from eggs.
- Some examples of live births are humans, dogs, whales, or deer.
- Some examples of hatching from eggs are birds, fish, sea turtles, alligators, or butterflies.

Once the animals are born, their stages of development can be different.
- Some animals, for example chickens, are born looking like their parents, and continue to grow into adult chickens.
- Other animals, for example frogs and moths, are born looking different from their parents and go through different stages and change considerably at each stage.

NOTE TO TEACHER: Some animal species within a group may hatch from eggs or give live birth that is different from most of the species. For example some type of rattlesnakes, guppies, and sharks give live birth, while the duckbill platypus, a mammal, lays eggs.

It is not essential for students to experience many different types of life cycles, but they should have a few experiences at great depth to make the learning foundational.

Assessment Guidelines:
The objective of this indicator is to *illustrate* various life cycles of animals; therefore, the primary focus of assessment should be to find specific examples or illustrations of animal life cycles, including birth and stages of development. However, appropriate assessments should also require students to *classify* by sequencing the correct order of the stages of development of a particular animal; or *compare* the life cycles of various animals.